

Abstract

A system and methods for implementing histogram computation, for example, into the rasterization pipeline of a 3-D graphics system, are provided. With the histogram computation mechanism, statistical histogram data may be generated for input data of any kind or retrieved from any source that may be specified in a 2-D array or specified in an immediate fashion to specialized data processing hardware. Depending on the nature of the input data, the data may be filtered before passing the data to data processing hardware for further processing. The data processing hardware may then apply an additional function to the input data set before calculation of the histogram data. Then, at some point, the data processing hardware may apply a function to the data to map the derived data to a real-valued function that can then be quantized to a histogram element in the range specified from zero to the number of histogram elements minus one. The corresponding element in this histogram is then incremented according to the data received as it passes through the graphics processor. Advantageously, relatively expensive host computing resources are conserved, and developers are insulated from the tedious details required of implementing histogram computation from the ground up each time it becomes desirable to compute histogram data in connection with an application.